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# CRASHWORTHINESS RESEARCH NEWS

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## **Symposium on Trends in Crash Safety and Occupant Simulation**

Dr. Tom Hollowell, Chief, Safety Systems Engineering and Analysis Division, recently spoke in Detroit at a well attended symposium, "Recent Trends in Crash Safety & Occupant Simulation." Organized by TNO-MADYMO North America, Inc., the symposium featured other distinguished speakers including Professor Albert King (Wayne State University), Dr. Paul Du Bois (Hermes Engineering), Dr. John Hallquist (Livermore Software Technology Corporation), and Dr. Jac Wismans (TNO Crash-Safety Research Center). Drs. King and Wismans addressed the topic of human body modeling, while Drs. Du Bois and Hallquist focused on the development and required future enhancements for finite element analysis codes in the modeling of vehicle crashes. Dr. Hollowell gave an overview of the modeling activities that are underway in the agency's research programs, and then summarized the role of modeling in vehicle safety regulation. Dr. Hollowell concluded his remarks by presenting his viewpoint regarding the improvements which would be required in finite element modeling capabilities that

could lead to the use of modeling for future motor vehicle safety standard certification.

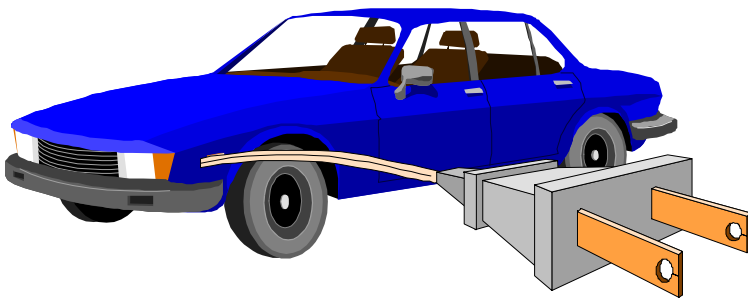
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## **R&D's Research Projects Discussed at Annual Society of Automotive Engineers Government/Industry Meeting**

Office of Crashworthiness Research staff members once again played an active role at the recent SAE Government/Industry meeting here. Ralph Hitchcock served on the General Committee. Daniel Cohen was responsible for co-organizing the overall Safety Session. William T. Hollowell (Tom) co-organized and chaired the well-attended session on Crashworthiness Research Topics. OCR staff member Sheldon Lee Stucki presented an overview of NHTSA's Frontal Crash Protection Program and Stephen M. Summers discussed NHTSA's Ejection Mitigation Research Program at that session. Catherine McCullough co-organized and coordinated a session on Roadside Hardware Design Issues and Vehicle Interaction. Tom Hollowell gave an oral presentation on NHTSA's Advanced Side Impact Research Program at that session.

## Partnership with Oak Ridge National Labs

NHTSA has entered into a partnership with Oak Ridge National Labs (ORNL) which allows the agency access to their parallel computer facilities. Office of Crashworthiness Research engineer Steve Summers went to ORNL to kick off the partnership agreement and to discuss the mechanics of allowing NHTSA researchers access to their paragon computers. These computers are Massively Parallel Processors (MPP) and contain from 64 to 1024 nodes each. Staff members from NHTSA and the Volpe National Transportation System Center have been granted accounts to conduct DYNA runs on the MPP machines.



## Overview of R&D Electric Vehicle Safety Program Presented

Barbara Hennessey, Physical Scientist in the Office of Crashworthiness Research, presented an overview of R&D's Electric Vehicle Safety Program and related SAE activities at the plenary session of the Department of Energy's ad hoc EV Battery Readiness Working Group Conference.

This conference, which is organized under the direction of the National Renewable Energy Laboratory, is held biannually with the purpose of sharing information concerning EV infrastructure planning on the part of power utilities, and research and

regulatory developments from international groups (ISO, IEC), and Federal and state agencies (DOE, EPA, DOT, CARB).

In the In-Vehicle Sub-Working Group Session, where participants attempt to identify areas requiring additional funding or resources to address EV safety issues, it was decided that support should be provided for special crash investigations for electric vehicles. NHTSA's funding for these investigations is limited. Plans are underway for DOE to provide some assistance in this area.

Barbara's presentation covered the results of the 6 EV crash tests conducted at TRC since 1993, which revealed electrolyte spillage and loss of electrical system isolation as post crash safety hazards. The test procedures which were developed by Mike Beebe at the Vehicle Research and Test Center in Ohio to address these issues were incorporated under his direction into SAE Recommended Practice J1766 Electric and Hybrid Electric Battery Systems Crash Integrity Testing. SAE J1766 has been approved for publication this summer.

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## Credits

This is the first issue of an informal newsletter that R&D's Office of Crashworthiness Research plans to publish periodically on their activities.

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Contributors to this issue:

Barbara Hennessey  
William T. Hollowell  
Steve Summers

## **OCR Welcomes New Staff Member**

Lori Summers was recently hired as a new engineer to work in the Safety Systems Engineering and Analysis Division of Office of Crashworthiness Research. Lori has been hired to acquire expert knowledge in air bag and safety belt system technology, and to conduct computer simulations and oversee improvements in the modeling of these occupant restraint systems.

Lori has a M.S. degree in Mechanical Engineering from the University of Maryland, and has six years of experience with NHTSA's finite element modeling, and rigid body analysis programs. Lori was previously employed as Project Manager of the D.C. branch of Conrad Technologies Inc. providing research and analysis for the Biomechanics Division, Office of Crashworthiness Research.

## **Accomplishments and Upcoming Events**



## **Accomplishments**

UVA delivered the draft final report on their work under a task ordering agreement to support the needs of Safety Performance Standards in evaluation of two petitions regarding seating system performance.

Quantum Consultants/Battelle delivered the draft final report on the development of a finite element model of the Side Impact Dummy. The model is being verified against corridor response data from linear impactor thoracic and pelvic calibration tests. The model will also be verified against rigid and padded wall sled test data.

## **Events**

May 13-16      Fifteenth International Technical Conference on the Enhanced Safety of Vehicles Melbourne, Australia

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May 29      Deadline for filing application for discretionary cooperative agreement program to support research studies to evaluate potential improvements in occupant protection during motor vehicle crashes and solicits applications for projects under this program

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June 12      Research & Development Programs Public Meeting Detroit, Michigan

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